DOCUMENT RESUME

ED 188 800 RC 012 051

AUTHOR Bradshaw, Ted K.
TITLE The Rural Advanced Industrial Society: Social and Economic Change.
INSTITUTION California Univ., Berkeley. Inst. of Governmental Studies.; California Univ., Davis. Agricultural Experiment Station.
SPONS AGENCY Department of Agriculture, Washington, D.C.
PUB DATE Aug 79
NOTE 35p.; Paper presented at the annual meeting of the American Sociological Association (Boston, MA, August, 1979).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Adult Education; *Economic Change; Educational Change; Employment Opportunities; *Industrialization; Local Government; Postsecondary Education; Rural Areas; *Rural Development; Rural Education; Service Occupations; *Social Change; *Technological Advancement; *Urban to Rural Migration
IDENTIFIERS *Interdependence; Nonmetropolitan Areas

ABSTRACT

The decline of rural areas caused by agricultural mechanization may now have run its course with the rise of post- or advanced-industrialism which is offering a new set of opportunities and problems for the development of many rural areas. Instead of the pastoral subsistence farm of the past, rural America is becoming primarily non-agricultural with employment in service industries increasing to nearly 70%. High technology manufacturing is locating in rural areas because it does not need to be near natural resources or energy and because rural locations offer desirable life style options to highly skilled employees. Rural educational opportunities are improving especially at the post-secondary and adult levels. While these changes offer rural areas the potential to break out of the cycle of rural poverty, they create new problems of interdependence which affect local government. Rural advanced industrialism may be found in all states, but is concentrated in the 16 most developed states; together these states have 22.8% of the U.S. nonmetropolitan population. (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED188800

APR 28 1980

THE RURAL ADVANCED INDUSTRIAL SOCIETY: SOCIAL AND ECONOMIC CHANGE

Ted K. Bradshaw*

Institute of Governmental Studies
University of California, Berkeley 94720

ABSTRACT

The decline of rural areas caused by agricultural mechanization may now have run its course with the rise of post- or advanced-industrialism which is offering a new set of opportunities and problems for the development of many rural areas. Instead of the pastoral subsistence farm of the past, rural America is becoming primarily non-agricultural with employment in service industries increasing to nearly 70 percent. High technology manufacturing is locating in rural areas because it does not need to be near natural resources or energy and because rural locations offer desirable life style options to highly skilled employees. Rural educational opportunities are improving especially at the post-secondary and adult levels. While these changes offer rural areas the potential to break out of the cycle of rural poverty, they create new problems of interdependence which affect local government. Rural advanced industrialism may be found in all states, but is concentrated in the 16 most developed states; together these states have 22.8 percent of the U.S. nonmetropolitan population.

*Paper read at Session on Rural Sociology, Annual Meetings of the American Sociological Association, Boston, August 1979. Research supported in part by University of California Agricultural Experiment Station, the Institute of Governmental Studies, and Title V of the Rural Development Act, U.S.D.A. The assistance of Edward J. Blakely and Betty Lou Bradshaw is appreciated.

RC 012051

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Ted K Bradshaw

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

APR 28 1980
MAY 1980
ERIC / CRESS
RECEIVED

THE RURAL ADVANCED INDUSTRIAL SOCIETY: SOCIAL AND ECONOMIC CHANGE

Rural areas of the United States and many other advanced countries are being affected by a new set of changes which promise to solve many of the old problems of lagging and depressed rural areas, and which at the same time may give rise to a new generation of social and economic difficulties for small communities. Until recently, technological changes in agriculture shaped the fortunes of rural areas, and indirectly, of urban areas as well. With each mechanical, chemical, and biological advance more farms were closed, more communities saw their residents migrate to the cities, and more young people looked for their opportunities elsewhere.

In recognition of these changes, sociological research on rural areas has largely concentrated on agricultural and economically depressed regions experiencing population decline and limited opportunities. Although some of these studies glorified rural areas as simple small town Arcadias where gemeinschaft social relations had not yet been ruined by industrialization (Newby, 1978), the problems of rural underdevelopment have dominated and shaped subsequent research. The rural experience in this research is linked to several aspects of underdevelopment: rural economies are depressed due to the decline in resource based industries (Hansen, 1973); Lonsdale, 1979; Tweeten and Brinkman, 1976; Marshall, 1974); educational opportunities are lacking (Griessman, 1969; Fratoe, 1978); governments are ineffective (Sokolow, 1968); welfare services are not available (President's National Commission

on Rural Proverty, 1967; Mugge and Eppley, 1971); rural problems are not appreciated by state and federal governments (Bold, 1977 ; Martin, 1978); and these factors contribute to the rapid population decline in rural communities (Greenwood, 1975). Internationally, these themes are central to studies of the process of development in third-world countries, and in the U.S. they are studied as a social problem along the lines of the sociology of other oppressed, disadvantaged, and deviant groups. While the study of rural areas is scientifically important and may benefit the residents of lagging rural areas by bringing attention to their condition, research on rural society in general also requires an assessment of rural areas that have solved problems of backwardness.

Currently, increasing evidence suggests that the decline of rural areas may now have run its course with the rise of post- or advanced-industrialism which is offering a new set of opportunities for the development of rural areas. Instead of the pastoral subsistence farm of the past, rural America is becoming primarily non-agricultural with only a small percentage of rural residents involved in farming. Instead of a long and persistent population decline, small rural communities are growing in population, and new migrants are bringing economic and social resources with them. In many states the availability of educational reosurces in rural areas is giving residents opportunities for development of their human resources similar to opportunities in the city, and educational institutions are becoming centers for local and regional development projects. Rural housing and health are improving greatly as governmental capacity has increased, and new "welfare state" services aid both the poor who previously were forced to migrate to the city

and new middle class migrants who expect public facilities for the pursuit of desired life styles (Bradshaw and Blakely, 1978). With the development of many advanced industrial characteristics, rural society is also faced by problems which previously passed it by. Crime is on the rise (Fisher, 1979); racial tensions are increasing; pollution and crowding are marring areas which used to be primitive and isolated; and growth control is advocated especially by newcomers who do not want to share their new communities' benefits. In short, this is the making of a new rural age.

Recent research by Bradshaw and Blakely (1979) has demonstrated that rural California is an example of this new pattern of rural development. California, a dominantly urban state, is one of the most advanced industrial regions in the nation and perhaps the world as measured by a number of indicators used by analysts of "post-industrialism" (Bradshaw, 1976; La Porte and Abrams, 1975). The state also has a large rural population numbering over 1.8 million persons in 1970, making it the tenth largest rural state in the U.S. (U.S. Bureau of the Census, 1970). Rural California, however, is not a typical economically depressed region. According to Bradshaw and Blakely, rural California is experiencing significant development from the high technology industries and an expanding service sector of an advanced industrial society. Furthermore, educational opportunities are extensive, highlighted by the community college system with 34 campuses that serve primarily rural parts of the state; as well, many oth er postsecondary programs offer life-long learning to rural residents. Rural governance is much strengthened by regional organization, and a large number of welfare and social service programs have been mandated because of the fact that these rural areas are part of a large, affluent, and progressive state that does not often differentiate rural from urban policy targets. These developments have

both resulted from and contributed to rural population growth in California at a rate three times urban growth rates from 1970 to 1977 (Sokolow, 1977).

Today many communities in other rural regions are also experiencing a new prosperity as well as a new pressure from their linkage to high technology, social service delivery systems, and educational networks. These new rural experiences may be understood from the perspective of the emerging social structure implied by advanced industrialism. The purpose of this paper is to provide an overview of some of the evidence that rural areas in California and elsewhere are being affected by advanced industrial developments. It is timely to present this assessment now because the reversal of population migration patterns and the recent population growth in rural areas mandates a rethinking of contemporary rural experiences. Furthermore, an overview of the effect of advanced industrialism in rural areas will demonstrate that rural development may proceed along paths that are an alternative to the frequently assumed invariant path taken by industrializing nations during the 19th and early 20th centuries (Giddens, 1976: Newby, 1978), and implied by such theories of economic growth as Thompson's (1969) filtering down processes.

The Rural Advanced Industrial Society

The notion of the rural area in an advanced industrial society is a theme which has been introduced before, and it presents a challenge to the development of a rural sociology. W. Keith Warner in his 1974 presidential address to the Rural Sociological Society argued that the impact of post-industrialism on rural areas will not eliminate the need for a rural sociology

but that,

> rural society still exists in national societies labeled indistrial or post-industrial. It is more differentiated, complex, and challenging as an object of study than ever before, but may become less fashionable. If rural society does not become more like a minority group--and one that is not united, mobilized, and highly visible--it may be neglected as an object of substantial and sustained sociological analysis (1974:314)

The challenge, Warner points out, is that "there is not too little to do, but too much" (1974:316). Similarly, Charles Anderson argues that concepts of development might change: "A social science designed for the concerns of post-industrial society might view the problem of development differently from the social science of a high industry society" (Anderson, 1971:30). Nonetheless, the notion of a post-industrial rurality has not been specified nor elaborated.

The term "post-industrial" gained prominence after Daniel Bell's work, The Coming of Post-Industrial Society (1973). It has been widely used by a variety of sociologists, political scientists, and writers in popular journals in the United States, Europe, and Japan, but few have given clear definition or empirical reference to the concept. An excellent review of the term's use is provided by Ferkiss (1979) along with a substantial critique in which he charges that "the 'theorists' of the post-industrial society are inevitably ideologists working to create--if not a new society as such--a new way of looking at the social world which has important consequences for actual social relations" (1979:1). Although never operationally defined by Bell, the post-industrial society is discussed as a new social structure based on a technologically sophisticated, service intensive economy whose growth and development runs on the prevalence of scientific knowledge. However, as Ferkiss and other critics point out, each of these developments has a long tradition of importance in industrial society and hardly represents a break with the social structure produced by industrialism. With a few exceptions

it has not been empirically verified that the United States or anywhere else has become a truly "post-industrial" society. For example, the importance Bell gives to the growth of the service sector (exceeding 50% of employment by 1956), does not result from a decline in industrial employment as he suggests; on the contrary, virtually all growth in service employment has come at the expense of agriculture and extractive industries while manufacturing employment has remained constant at about 30% during the last 75 years (La Porte with Bradshaw, 1977).

Nonetheless, technology has become more sophisticated and services have increased. For these reasons, I have preferred to use the term "advanced-industrial" to signify a series of changes including some of these which Bell describes, but I do not imply the kind of massive social structural reorganization suggested by the notion of post-industrialism. Advanced industrialism, and in particular its rural variant, involves a number of macro-social characteristics which tend to be found together in affluent regions and countries. Four characteristics may be identified as central to the concept: (See Chart 1):

1. Knowledge intensive technology. Whereas industrialization in the last part of the 19th century combined new methods for linking power driven machines to the economic and social organization of the factory, the advanced industrial society emphasizes new industries with large investments in knowledge (primarily research and development costs) and low investments in heavy energy consuming machinery. Until recently, rural industrialization was based on proximity to raw materials and energy, characteristic of slow growth industries requiring low skill workers. The slow growth energy intensive industries such as stone/glass, paper, primary metals, lumber and textiles have low propositions of professional knowledge intensive input and were attracted to rural areas by low wages and tax incentives.

During the last 30 years fast growth, knowledge intensive industries such as electronics, aircraft, instruments, and communications have been largely independent of natural resource and energy supply locations. These industries produce on the average more than 10 times the output (dollars value added) per unit of energy consumed in manufacture than slow growth industries (Bradshaw, 1977, 1978), and they have a work force with around 20 percent college educated personnel compared to only 3-5% for the others. The desirability of rural life styles is attracting new high technology industries to locations with limited natural resources.

2. Expanded service sector. The service sector in advanced industrial economies inclueds nearly 70% of the work force. While much of this is in low skill trade and service industries, the professional sector has grown even more rapidly to include nearly two in ten employed persons. Associated with the rise of the service sector is the expansion of social services by government, what may be called "welfare state" programs. With the decline in agriculture, many rural areas are becoming service oriented without any intervening industrialization.

3. Expanded knowledge resources. The role of knowledge in industry and professional services leads to more emphasis on postsecondary education to provide credentialed workers (Meyer, 1977). In addition, formal learning takes place throughout a person's life for recreation, personal improvement, and job change. These programs reach a majority of the population in urban and rural locations.

4. Increasing social interdependence. The preceeding changes in combination have the consequence that industries, places, and individuals are more dependent on each other in more complex ways than in industrial society. Each of the other changes produces increased diversity and the

need for closer coordination between the multiple parts. Social organization no longer functions through individual type relationships but through formal interdependencies involving complex multipurpose organizations. The interdependencies pose new challenges to rural communities as they struggle to adapt national programs to their particular needs.

These four developments occur in varying mixes in rural areas. By considering them as patterns of advanced industrial development and checking for their occurence, patterns of rural development in places like California may be understood. Furthermore, newcomers and their institutions described in the recent literature on reverse migration into rural areas (e.g., Ploch, 1978; Bowles, 1978) have characteristics that exemplify advanced industrial development. The special potentials of these new developments make the reception of highly skilled newcomers in rural areas more likely regardless of the multiple factors contributing to their migration from urban areas.

Rural advanced industrialism is a relatively widespread phenomenon. Since many of its institutionalized and organized impacts are concentrated in states which have the greatest overall development among the lines suggested by the four characteristics, an estimate of the rural population in the most developed states provides a starting point for determining how many rural residents are affected. Recent data from the 1976 Survey of Income and Education provide accurate estimates of economic and social development at state levels and may be combined with other data to rank states in terms of their advanced industrialization. Six indicators of advanced industrialization have been collected for each state. Four indicators from the Survey of Income and Education are: the proportion of the working population in white collar occupations, the proportion working in professional and technical occupations, the proportion working

Chart 1

Characteristics of the Industrial Society, the Advanced Industrial Society, and Rural areas of the Advanced Industrial Society

Characteristic	Industrial Society	Advanced Industrial	Rural Advanced Industrial
Technology	High energy consuming machinery substituted for human Labor	Knowledge intensive technologies substituted for bulky machinery	Knowledge intensive agriculture in a highly integrated food industry; movement of electronics and other high technology plants to the rural area.
Services	Services introduced to the marketplace; growth of transportation, utilities Communication and trade	Professionalized and extensive network providing specialized services.	Specialized agricultural service, expanded tourism and wider distribution of professional and welfare services.
Knowledge	Development of Literacy and Mass Primary schooling	Nearly Universal higher education and extensive institutionalized research network.	Better distribution of educated opportunities, research taking place on farms, new educational structures outside of schools, new atmosphere of need and interest in education
Relationships	Traditional relations replaced by rationalism and secular concerns	High degree of interdependence and complexity which demands planning and coordination	Rural towns integrated into regional networks; media create increasing awareness of outside developments; emergence of regional governmental systems.

Source: Bradshaw and Blakely, 1979:14.

in the growing service and trade industries (including public service employment), and the percent of the working population with four or more years college education (U.S. Bureau of the Census, 1976). In addition, state welfare effort is measured by the average monthly payment to families with dependent children, (U.S. Bureau of the Census, 1978: 359), and interdependence within the governmental sector is measured by Walker's (1971) index of rate of adoption of policy innovations, many of which are governmental responses to increasingly interdependent social needs.

Scores for each state were determined by summing the number of indicators on which the state was over the national average. Six states were over the national average on all six of the indicators: Massachussets, New York, Utah, Washington, California, and Alaska. In addition, five states were above the national average on all but one indicator: Colorado, Maryland, New Jersey, Connecticut, and Hawaii. New Mexico, Virginia, Oregon, Rhode Island, and New Hampshire were above the national average on four of the six indicators. These states may be considered the most advanced industrial in the nation, and together they account for 22.8% of the nonmetropolitan population.

It is worth noting that the top 11 traditional industrial states, each with over 27% employed in manufacturing in 1975, are not also among the advanced industrial states, with only one exception (Connecticut). These states including Pennsylvania, Ohio, Indiana, Wisconsin, Michigan, North Carolina, and Illinois, are generally large and affluent and include a total of 28.3% of the nonmetropolitan population. As for the remaining states, they have been largely bypassed by both industrialization and advanced industrialization, although there has been considerable recent industrial location in the South (Haren and Holling, 1979:27).

These data suggest that patterns of development identified in California have their parallel in other parts of the country, and that perhaps a quarter of the rural population is closely interdependent with state economies which are increasingly based on advanced industrialism. In the sections that follow I will elaborate the characteristics of rural advanced industrialism by showing that economies of some rural areas in the United States are significantly influenced by potentials of high technology industry, the expanded service sector, and widespread knowledge producing and transmitting institutions. Finally I shall show that these developments are creating a society which is highly interdependent and that local governments have been a primary locus of this change, creating both new organizational responses and new concerns for local areas.

From Economic Backwater to a High Technology Service Economy

The economic changes in the process of advanced industrialization involve, first, the prevalence of industries with higher levels of technological sophistication and, second, the growth of employment in the service industries as a major source of economic development. Although the two changes will be discussed separatly, they are in fact closely related. For example, one of the important changes occurring in agriculture is the development of professional service companies which advise farmers on pest maragement, irrigation, soil conditioning, and the like. These activities, long performed by farmers as part of their job without any extra attention to it are now done by someone working in a non-agricultural job in the service sector by applying a high level of sophisticated knowledge and technology which the farmer does not have and often times cannot acquire because it is so specialized. Thus, the more sophisticated technology resulted in a shift from agriculture to services employment

High Technology Industry and Rural Development

Technological development in the advanced industrial society is based on the use of scientific knowledge in the development of industrial processes that are knowledge intensive rather than energy and capital intensive as in the early industrial era or labor intensive as in the pre-industrial era. This development is seen in both the creation of new industries which are based on new technologies and the change of old industries which have new ways of doing things.

New technologies permit the location of industry to be based on desirable places to work and live rather than on proximity to natural resources. Spengler (1967 estimates that today only about 7 percent of the labor force needs to be located close to natural resources whereas 30 years ago nearly 30 percent of the labor force was locationally determined. This geographic freedom is greatest in many of the electronics industries where entire factory outputs may be shipped in the back of a small truck. Hansen notes that

> with increasing emphasis, economic opportunity is associated with capital and human skill, and not with land and natural resources. Today, the added time needed for an extra several hundred miles of personal travel, communications, or goods shipment is often less than the time required for the first ten miles (Hansen 1970, 23).

Furthermore, as the knowledge content of the product being manufactured increases, a larger part of the activity of the company is involved in communications among people. To the extent that these communications are not strategic negotiations, they may be located in rural places.

High technology manufacturing may locate in rural areas because it does not need to be tied to natural resources but to a skilled labor force. To the extent rural areas provide attractive opportunities for skilled

workers to pursue desired life styles, they may attract high technology industries. Improved rural transportation and communications systems facilitate these changes. Some available data suggests that rural areas are now taking more advantage of high technology industries, which are for the most part fast growth industries, in contrast to slow growth industries which rely on older and less complicated technologies for their processing. Thus, Petrulis has shown that rural areas have been the recipient of a favorable mix of fast growth industries along with the expected slow growth industries moving from central city locations. In contrast, urban areas have lost slow growth industrial employment, but they have not replaced it with new industrial expansion of fast growth industries. Instead fast growth has located in middle range cities and small towns:

> Contrary to expectations, non-metro areas have benefited from a favorable mix of fast-growth industries and, at the same time, they have been able to increase their share of such industries. It appears that the smaller towns are taking on some of the functions of the large metro areas (Petrulis, 1978:15).

Similarly, Seyler and Lonsdale suggest that firms in higher wage and higher technology industries have become increasingly common in nonmetropolitan areas. As a result, some areas are "improving the mix" of industry in their area and are exhibiting new types of rural industrialization patterns (1979:186). Robert Wrigley has also noted that

> aspects of rural life are attractive to knowledge intensive industries. For example, skilled workers, improved market access through modern highway systems, greater livability, and higher quality of life are positive factors considered by companies considering a rural

> location. In recent years, intellect-oriented industries have become important--research and development activities, and some parts of the aerospace, electronics, and precision instruments industries. These industries, hiring a high proportion of scientists, engineers, and other professionals, particularly consider the desires and needs of their personnel. Although many firms of this type have located in the urban fringe of large cities, some are moving to small cities deep in rural territory, since they have found that the size of the city does not control the level of intellectual and recreational activity. (1973:59)

Bradshaw and Blakely show that because of these possibilities between 1965 and 1976 California's rural areas acquired over 5000 new jobs in computing, electrical machines, and scientific instruments. These three high technology sectors accounted for about 20% of all new manufacturing jobs in nonmetropolitan locations (1979:43). This unexpected type of development is indicative of the type of growth that is possible due to high technology in other parts of rural America.

The recent growth of employment in advanced industrial nonmetropolitan areas is primarily a result of small scale developments rather than a centralized movement of large and well established firms from central cities into depressed regions. For the most part high technology plants in rural locations are relatively small, especially compared to a steel mill or automobile assembly plant. The largest manufacturing employers throughout many recently growing rural states are old lumber mills, canneries, and other resource based plants. New employers are small scale organizations or small units of large companies. Also, a large number of independent professionals work in rural areas, linked by phone or computer to the central city. For example, professional engineers, scientists, computer programmers, designers, analysts, writers, and testers are increasingly choosing to work in rural locations. An increasing number of research projects in biology and geology require rural environments. Taken together these developments have produced a new base for rural industry where skilled workers attract and create work opportunities.

The Growing Service Sector in Rural Economies

With the decline in agricultural employment in rural areas, the service sector, supported by trends of professionalization, governmental growth, and tourism, has grown so that it now is by far the largest rural employer. From 1962 to 1978, according to data presented by Haren and Holling (1979:16), service performing employment increased at a rate of 81.5% in U.S. nonmetropolitan counties compared to a rate of only 77% in metropolitan areas. Over 70% of all new jobs in nonmetropolitan areas were in services. In the northeastern and western regions, the shift to services was more pronounced than in the nation as a whole with 85% and 76% new jobs in services respectively. The South, however, only had 63% new service jobs (Haren and Holling, 1979: 29). These data present a clear picture of rural development being primarily service oriented even in the rural south with its well documented pattern of traditional industrialization

Professional services. Within the service sector professional services were the most rapidly growing component. Data based on the 1977 Current Population Survey and compared to the 1970 Census (U.S. Bureau of the Census, 1978a: Tables 13 & 15) give a perspective on changes over time in nonmetropolitan employment. During the seven year period overall nonmetropolitan employment grew by 24.4% but employment in professional service industries (law, education, medicine, etc.) grew by 43.1%. Business services such as repair and accounting grew by 41.0%. The role of newcomers in these trends is particularly strong. Bowles (1978) presents data from the 1975 Current Population Survey which show that 18.2% of the male metropolitan workforce engaged in professional industries were newcomers who migrated from a metropolitan area whereas only 12% of the total male workforce in nonmetropolitan

areas were migrants. Similarly, Bowles' data show that newcomers are 20.9% of the male workers in professional occupations (engineers, teachers, lawyers, etc.) compared to their 12% share of the population (Bowles, 1978: 19-20). What these data mean is that the rural labor force is growing in the direction of an advanced industrial society in the service sector and especially in the professional categories (medicine, law, education, etc.) with migrants contributing greatly to these changes.

Public Service Employment. Expanding public service employment provides another source for rural economic growth in service industries, especially with the increasing professionalization of public administration in rural areas and the expansion of welfare services to rural citizens. Public administration in rural areas has become much more professionally oriented in its employment, moving away from volunteer administration and direct service delivery to issues of planning and professional administration. Compared to overall employment growth of 24.4% between 1970 and 1977 public administration employment has increased 26.0% in nonmetropolitan counties. However, of this growth a disproportionate part has been professional and managerial positions. These grew by a rate of 39.4%.

Service sector employment in rural areas has also been expanded by the increasing availability of public welfare services to rural disadvantaged. Until recently, public welfare programs were the responsibility of local communities and county governments, and they were limited to only the most essential types of services for the insane, blind, and other permanently needy persons. State and federal governments have gradually taken over some administration and financing these programs, greatly changing their

character. State takeovers have increased because of taxpayer revolts such as Proposition 13 in California, and the federal role has increased through programs such as Title XX of the Social Security Act. Environmental protection legislation has led to governmental efforts to improve water and sewage systems in many rural areas. These larger social and legislative changes are providing resources and program direction in rural welfare, health, housing, and public works programs that have a much greater impact than any of the explicitly rural programs implemented by governmental agencies.

An example of the availability of welfare services in rural areas is provided by data on the extensive use of welfare programs in rural California. In that state services to rural residents and delivered at nearly the rate of urban areas. For example, Aid to Families with Dependent Children (AFDC) is given to nearly one in every seven rural children (14.0%) while in urban areas only a slightly higher proportion (14.9%) were receiving aid. Food stamps were available to 6.6% of the rural population compared to 7.2% of the urban (Bradshaw and Blakely, 1979:126).

The more important change in human service availability in rural areas, however, is the growing diversity of services regularly provided in nonmetropolitan counties. Federal law has mandated that all states provide services under Title XX of the Social Security Act that encourage economic self support, self sufficiency, protection of children and adults, community home based care, and institutional care. These programs are to be provided in all counties, and each state has the responsibility for creating its particular programs which must be reflected in plans for their implementation. Taken together these programs stretch through every life stage from pre-natal care,

day care, troubled youth, and other programs for children to adult health, housing, legal, dental, unemployment, pre-retirement and oldage care.

Tourism. Another source of economic growth for rural economies is the service industry of tourism. Increasing urban affluence, the development of improved highway facilities, and the overwhelming public attention given to physical fitness and appreciation of the environment combine to make rural tourism attractive for many areas (Bradshaw, 1978). The growth of the tourist business may be illustrated by the use of the National park system. From 1950 to 1977 the national population grew by 43% but the use of the parks increased 800% (U.S. Bureau of Census, 1978: 12,15,242). The number of fishermen and hunters doubled between 1960 and 1975 (247). Rural outdoor recreation is heavily used by urban visitors, requiring considerable investment by the public in facilities and amenities in order to accommodate people and their new interests in such things as dune buggies, hang gliding, mountain climbing, and the like (Bradshaw and Blakely, 1978). Nonmetropolitan employment in entertainment and recreation industries increased 29.7% from 1970 to 1977. Even so, the economic impact of the tourism may be quite uneven. Hansen (1973:161) noted that too much emphasis on tourism for economic development may bring satisfactions to urban populations and profit to many urban based developers, but may create a low skilled employment base that is affected by highly seasonal variations and economic changes outside the region including such factors as gasoline shortages.

On the other hand the tourism industry has made an unexpected contribution to rural economies. Traditional craft skills of woodworking, folk art, weaving, candle making, stained glass, and similar production skills are

being revived in many rural parts of the country. This anomaly, to have some primitive crafts being pursued with vigor in a highly technical society can only be explained by the fact that crafts have been turned from a core economic skill needed for survival into an "art" that is part of the rural life style. As MacCannell argues, tourism in modern society is based on the reconstruction of the past and the "marking" of rural experience with legitimate artifacts which signify rural tourist experiences (1976:8).

From One Room School House to Life Long Learning

Rural advanced industrial development builds upon a fundamental change in the necessary resource base for rural areas. Knowledge and human skills in advanced industrial societies are a new base for development, replacing dependence on natural resources. The problem for many rural areas has long been that all types of educational services, from preschool to adult education and from vocational to liberal arts programs, have been unavailable, poorly financed, too limited in scope, and taught by poorly qualified teachers. One room schools are now few in number, but they have been symbolic of the problems or rural education (Sher, 1977).

In the most advanced rural regions of the nation the primary and secondary educational systems have improved. They are enrolling students for about the same length of time as in urban locations (U.S. Bureau of the Census, 1970: Table 146), and are sending students to college at rates nearly as high as in city schools. The major change, however, is in the postsecondary level of education where three developments go hand in hand to provide significant knowledge resources to rural areas. First, institutions of higher education are becoming widely available in many

rural areas; second, programs extend throughout a persons life; and third, the institutions themselves are becoming involved in a wide array of economic and community development acitivities.

The widespread availability of college programs in rural areas is the most important change to affect rural education in the last several decades, along with the consolidation of rural school districts. In many states the number of rural campuses of state university and college systems has grown, and the share of the student body allocated to them has likewise increased. As well, the community college system in most states has roughly followed a model developed in California to provide an extensive network of campuses within commuting distance of nearly all students. Rural youth who want to go to college no longer must assume that they will have to live on campus at the state agricultural school in a distant county; there are options closer to home. What this means is that the urban advantage in higher education is decreasing and that the promise of "universal" higher education (Trow, 1962, 1970), where a majority of high school graduates actually attend an institution of higher education, is now being realized in rural counties.

A unique set of data collected in California by its Postsecondary Education Commission (1978) show that rural access to college nearly matches that of urban areas. In 1977 first time enrollees in California public colleges were asked where they graduated from high school. The college enrollees from rural counties constituted a total of 52.6% of all high school graduates from those counties. In comparison, enrollees from metropolitan counties included 56.8% of graduates, only a few percentage

points higher than in rural counties. These data do not include the proportion enrolling in private college (2-3%), the proportion attending college out of state (another 2-3%), or those delaying enrollment in college after high school graduation. From these data it may be concluded that rural youth have become major clientele of rural postsecondary educational systems, and further, that college enrollees constitute a clear majority of rural California youth. Also, the rural disadvantage at the entry stage of post-secondary education has decreased--the difference in 1977 of 4.2 percentage points was down from 4.8 in 1974.

Life long learning has been made possible in many parts of the nation by increases in adult education programs and private educational courses covering vocational and other subjects. Participation in adult education programs nationally increased by 30.8% during the period from 1969 to 1975 with only a 12.6% increase in the population. Data from the 1975 Current Population Survey (U.S. Department of Health, Education, and Welfare, 1975; Table 14) show that the proportion of persons enrolling in any broadly defined adult education course was greater in urban areas than in rural, though the difference was limited. In the northeast region, nonmetropolitan areas (10.4%) were only 0.1 percentage points below the metropolitan (10.5%), whereas in the south the nonmetropolitan (8.2%) lagged the metropolitan (13.0) by a 5.2 percentage points. In the west, however, adult education is much more widely used and the nonmetropolitan rate of participation (15.9%) exceeded the metropolitan in every other region, although lagging behind the high Western metropolitan rate of 18.4%. Additional evidence of the role of life long learning is from changes in the enrollment ages of students in colleges. Many colleges report the average age of their students exceeding 30.

Institutions of higher education in rural areas have long had a significant responsibility for bringing knowledge resources to meet community needs through cooperative extension and agricultural research. This has broadened recently in many rural communities where the local community college or state university campus becomes a key institution in facilitating change. For example, in one rural lumber community a developer wanted to tap some geothermally heated water to grow tomatos hydroponically. However, in this county there were no workers skilled in hydroponic farming. In cooperation with the college, a series of courses were established that provided a skilled work force for this project, ultimately employing 100 workers. In other places colleges are a major force for the creation of new and innovative solutions to local problems such as making studies for the local government. (Blakely, Schutz and Zone, 1978)

From Local Governance to Organized Regional Interdependence

The increasing linkage of rural communities to the larger society is a well established theme in Rural Sociology (Fuguitt,1963; Sanders, 1977). As the linkages become more intense they create new problems which government is called upon to handle. Consequently, governmental processes become more complex. A traditional rural government typically concerned itself with the needs of community residents for roads, schools, police, and other services, but recent studies suggest that rural governments are finding the number of links with units outside their jurisdiction so overwhelming and the traditional resource channels so inadequate that their organizational limits are being exceeded; one might say that they are blowing an organizational fuse. For example, Hennigh has shown that traditional leadership structures

became so ineffective in rapid growth rural areas of Oregon that a taxpayer revolt turned down school budgets primarily out of frustration at the closed nature of school administration decisionmaking (1978). Similarly, Sokolow has noted that a "new kind of politics is appearing in many rural communities"(1979:24) and that the newcomers are often at the base of it. They bring political skills, demands for urban type services, and linkages going well beyond traditional community boundaries. The newcomers, according to Sokolow, "are harbingers of political change, not so much in picking fights with oldtimers, but in raising issues, challenging established patterns, and stimulating the participation of others" (Sokolow, 1979:24). The character of these changes may be understood in terms of the development of new ways to handle the increasing interdependencies of an advanced industrial society.

Interdependence is a widely used but poorly defined term. Bradshaw and Blakely (1979: Chapter 4) have identified four components of interdependence as felt by rural governments:

1) The problems of government involve larger scale groups, such as regional, state, and federal governments and even multinational corporations. 2) The solution of problems involves complicated, long-linked organizational structures to work with other organizations, and thus most things must be done indirectly. 3) The major activity of government increasingly is not the delivery of money, goods, personal services such as welfare or fire protection, but the major activity is planning and coordination of interdependent units such as in regional human services efforts or multicounty mutual aid fire districts. 4) Increasing concern is given to developments with a long time impact. These components of interdependence are separate, but correlated

aspects of the growth of linkages between social units in advanced industrial society. As interdependence increases, new levels of connectiveness and activity are reached, but the lower levels remain. In this sense interdependence builds "Guttman-like" scales for each component (Thompson, 1967:54-55). These components will be discussed for their impact on rural government

Rural Governmental Response to Interdependence.

Many rural governments have shifted the bulk of their activities from meeting the concerns of local citizens to responding to the requirements of regional and national organizations. Small town city managers no longer can spend most of their time on activities which are visible to the local citizens such as working to develop better fire and police protection. Instead, they must spend increasing proportions of their time concerned with the implementation of federal mandates and the acquisition of federal resources, the discussion of planning strategies with state officials,and the development of regional strategies to meet common problems. In each case the local government interacts with an organization of a larger scale and one which has concerns outside the local community.

The increasing role of state and federal agencies in the affairs of rural governments is well known. Not so well understood is the increasing importance of regional organizations which are a new level or organizational response that local governments must handle. These organizations take many forms, from formal Councils of Government (COGs) to informal program implementation organizations for community development (Bradshaw and Blakely, 1979: Chapter 6). The regional organizations in rural communities are serving many needs, but in so doing place an increased pressure on the local government. For example, recent population growth in rural communities has made growth control and land management planning a critical issue for local communities. Because these communities are increasingly interdependent and share shopping facilities,

recreational areas, employment opportunities, etc., the solution to orderly growth in one local community lies as much with the decisions of other communities as it does with an individual town. In fact, the traditional structure of rural governance was established to a large extent during a time when communities were relatively isolated from each other and people lived, worked, shopped, and used services all in one place. This is no longer the case in many rural areas where traditional governmental structures are under a much larger scale of pressure.

Regional organizations also provide a formal channel through which local interaction with larger scale units may occur. For example, the Northeastern California Higher Education Council is an organization of college presidents and staff through which common solutions to educational problems are worked out. In some cases it provides a means to share resources but the more important role is to provide an organized voice for rural higher education to federal and state policy makers. Similarly, economic development organizations have a better chance of acquiring funding and making an effective plan than would any single community working with the problems of attracting economic growth.

The second component of interdependence faced by rural governments is the increasingly complex patterns of linkage between units. Instead of a direct linkage between a governmental unit and individuals needing some assistance, there are many intermediary linkages that are specialized to perform some function that indirectly affects individuals. Coastal legislation illustrates the involvement of many new layers of bureaucracy in the affairs of rural governments. Scott notes that previous to the California Coastal Act, "local governing bodies had been accustomed to dealing with their own constituencies," (1978:5) but after the Act local decisions were a part of a complex regional governmental process where local initiatives had to be

submitted to other units for approval and integration with similar plans of other communities in order to achieve some larger social mandate. In order to achieve community goals, complex flow charts of responsibility and action are required in rural areas. Organizationally more units achieve indirect than direct effects.

More importantly, rural organizational problems are not available to solution through traditional means. Local problems were traditionally handled through an organizational structure which grouped similar activities into an administrative unit with centralized responsibility and limited spans of control. Under conditions of higher interdependence these structures no longer work. Welfare agencies, even in rural areas, are too large and busy to achieve effective coordination because too many programs cut across division lines. However, many organizations in rural areas, are successfully meditating these problems with a different organizational solution. For example, one of the features of many successful nonprofit corporations is that they are organized along the lines of matrix-style organizations where their function is to combine agencies into project teams to meet some specific goal. Funding may come from several sources and agencies may be involved in many projects at the same time. Instead of further dividing the responsibility for programs as in traditional administrative organization, these new organizations combine it in a flexible fashion to meet the complexity of the organizational arena in which they operate.

The third component of interdependence affecting the organizational structure of rural government is the increased emphasis on policy setting, planning, and coordination over the traditional governmental responsibility of direct service delivery and regulation. The development of local and

county plans is in response to the observation that community development should not be left entirely to chance. Waldhorn and Blakely (1976:3) suggest that the complex social, fiscal, growth, and conservation problems facing cities and counties of all size have increased the need for more effective planning and decisionmaking processes. Thus, to the extent that problems are perceived too difficult for solution by direct means or by regulations specifically aimed at the problem, effort goes toward planning and coordination, which, in effect, provide a context for rationalizing and legitimizing the more direct activities of governments. Although the need for planning and coordination in rural government is increasingly great, expectations for public policy achievements are often met by failures (LaPorte and Abrams, 1976:40-45). In rural areas plans are often of limited effect because of the reliance on urban models and the lack of skill of rural planners to deal with more than land use issues.

. rural governments are increasingly being pressured by events which will likely have long term consequences. Many of the demands of ecology groups on rural communities are of this sort. The prevalence of new knowledge about the potential harm from chemicals in the atmosphere often places challenges on rural governments they can not understand. Although more effort is being given to long term problems, government in rural and urban areas is not doing very well to structure their priorities for the long run.

Conclusion

The impact of advanced industrialism on rural society is marked. High technology industry and service sector growth create the means to solve many of the old problems facing the rural community. At the same time

new demands from the increasing interdependence have created a conditions under which a new generation of problems arise. Governmental structures in rural areas have responded to these by becoming more complex, but there is a general feeling that the problems are out of hand. To a large extent these conditions are the major distinguishing characteristic of the rural community in the advanced industrial society. Interdependence between rural and urban areas is now new; what is new is the extent to which these interdependencies are formalized and organized into new structures such as regional governments.

BIBLIOGRAPHY

Anderson, Charles W., "Postindustrial Society: Changing Concepts in Development Theory", Growth and Change, (July 1971:) 29-35.

Bell, Daniel, The Coming of Post-Industrial Society, (New York: Basic Books, 1973).

Blakely, Edward J., Howard Schutz, and Martin Zone, Goal Setting for Community Development: The Case of Yuba City, California (Davis: University of California, Institute of Governmental Affairs, 1978).

Bould, Sally, "Rural Poverty and Economic Development: Lessons from the War and Poverty", Journal of Applied Behavioral Science, 13:4 (1977) 471-91.

Bowles, Gladys K., "Contributions of Recent Metro/Non-metropolitan Migrants to the Nonmetropopulation and Labor Force", Agriculture Economics Research, 30:4 (October 1978).

Bradshaw, Ted K., "New Issues for California, The World's Most Advanced Industrial Society," Public Affairs Report, Vol 17, #4, August 1976.

Bradshaw, Ted K., "The California Setting" in Distributed Energy Systems in California's Future Interim Report Vol 1, (Berkeley: Lawrence Berkeley Laboratory, 1977).

Bradshaw, Ted K., "Life Styles in the Advanced Industrial Society," Paper read at the Meetings of The American Sociological Association, San Francisco, 1978.

Bradshaw, Ted K., and Edward J. Blakely, "Policy Implications of Changing California Life Styles" (Berkeley: Institute of Governmental Studies, 1978).

Bradshaw, Ted K., and Edward J. Blakely, Rural Communities in Advanced Industrial Society (New York: Praeger, 1979).

California Postsecondary Education Commission, Access in A Broader Context: Analysis of College-Going Rates for Recent California High School Graduates ((Prepared by Dorothy Knoell) Sacramento, Postsecondary Education Commission, 1020 Twelfth Street, Sept. 1978).

Ferkiss, Victor, "Post-Industrial Society: Theory, Ideology, Myth," Paper prepared for Delivery at the meetings of the Midwest Political Science Association, Chicago, 1979.

Fischer, Claude S., "The Spread of Violent Crime from City to Countryside, 1955-1975." Paper presented at Meetings of the American Sociological Association, Boston, 1979.

Fratoe, Frank A., Rural Education and Rural Labor Force in the Seventies, (Washington D.C., U.S. Department of Agriculture, Economies, Statistics and Cooperatives Service, Rural Development Research Report No. 5, 1978).

Fuguilt, Glenn V., "The City and Countryside," Rural Sociology, 28 (September 1963), 246-61.

Giddens, Anthony "Classical Social Theory and the Origins of Modern Sociology" American Sociological Review, 81:4 (January 1976), 703-729.

Greenwood, Michael J., "Research on Internal Migration in the U.S.: A Survey," Journal of Economic Literature, 13 (June 1975): 397-434.

Griessman, B. Eugene "A Sociologist's Perspective of Vocational Education Needs in Rural America, in B. Eugene Griessman, & Kenneth G. Densley (eds) Review and Symthesis of Research and Vocational Education in Rural Areas (Columbus Ohio: Eric Clearinghouse, 1969).

Hansen, Niles M., "How Regional Policy Can Benefit from Economic Theory," Growth and Change, Jan 1970, p. 20-27.

Hansen, Niles M., The Future of Nonmetropolitan America (Lexington Mass, Lexington Books, 1973).

Haren, Claude C. and Ronald W. Holling, "Industrial Development in Non-metropolitan America," in Richard Lonsdale and H.L. Seyler, eds, Non-metropolitan Industrialization (New York: Halsted Press, 1979), 13-45.

Hennigh, Lawrence, "The Good Life and the Taxpayers' Revolt," Rural Sociology, 43:(2), 1978, p.178-90.

La Porte, Todd and C.J. Abrams, "Alternative Patterns of Postindustria: The Californian Experience," in Leon Lindberg, (ed.), Politics and The Future of Industrial Society, (New York: David McKay, 1976).

La Porte, Todd R., with Ted K., Bradshaw, "Advanced Industrial California: Employment Patterns," California Data Brief, Vol 1, No. 4, (Berkeley: Institute of Governmental Studies, July 1977)

Lonsdale, Richard E, "Background and Issues" in R. Lonsdale and H.L. Seyler, eds, Nonmetropolitan Industrialization (New York: Halsted, 1979)

MacCannell, Dean, The Tourist-A New Theory of the Leisure Class, (New York: Schochen, 1976)

Marshall, Ray, Rural Workers in Rural Labor Markets, (Salt Lake City, Utah: Olympus Pub Co., 1974)

Martin, Philip L., "Rural Employment Programs: The Case for Remedial Policies," Monthly Labor Review, (April 1978) pp. 30-32

Meyer, John W. "The Effects of Education as an Institution" American Journal of Sociology, 83:1 (July 1977) pp. 55-77

Mugge, Robert H and David B. Eppley, "Urban Rural Constraints in Public Welfare," in The Quality of Rural Living (Washington D.C., National Academy of Sciences, 1971).

Newby, Howard "Rural Sociology--A Trend Report," (Part 1 of a report Commissioned by the International Sociology Association to be published in Current Sociology in 1979). Paper read at Meetings of the Rural Sociological Association, San Francisco, September 1978.

Petrulis, M.F. "Growth Patterns in Nonmetro Manufacturing Employment," U.S. Department of Agriculture; Economics, Statistics, and Cooperatives Service; Rural Development Research Report, No. 7, 1979.

Polch, Louis A., "The Reversal in Migration Patterns--Some Rural Development Consequences," Rural Sociology, 43:2 (1978), 293-303.

Presidents' National Advisory Commission on Rural Poverty, The People Left Behind (Washington D.C.: Government Priority Office, 1967).

Sanders, Irwin T., Rural Society, (Englewood Cliffs, N.J.: Printice-Hall).

Scott, Stanley, "Coastal Planning in California: A Progress Report," Public Affairs Report, Vol 19, No. 3-4, (June-August 1978).

Seyer, H.L. and Richard Lonsdale, "Implications for Nonmetropolitan Development Policy," in Richard Lonsdale and H.L. Seyler, Nonmetropolitan Industrialization, (New York: Halsted, 1979).

Sher, Jonathan, ed., Education in Rural America: A Reassessment of Conventional Wisdom, (Boulder: Westview Press, 1977).

Sokolow, Alvin D., Governmental Response to Urbanization: Three Townships on the Rural-Urban Gradient, (Washington, U.S. Department of Agriculture, Economic Research Service, 1968).

Sokolow, Alvin "California's new Migration to the towns of the Cow Counties," California Journal, 8 (October 1977) pp. 348-350

Sokolow, Alvin D., "The Politics of Small Town Growth-Newcomers, Issues, and local Government," Paper prepared for conference on Understanding Population Change, (Urbana Champaign, March 1979).

Spengler, Joseph "Some Determinants of the Manpower Prospect, 1966-1985," in Irving Siegal, ed., Manpower Tomorrow: Prospects and Priorities, (New York: Augustus Kelley, 1967)p.91.

Thompson, James D., Organizations in Action, (New York: McGraw Hill, 1967)

Thompson, Wilbur R., "The Economic Base of Urban Problems," in N.W. Chamberlain, ed., (Contemporary Economic Issues (Homewood, Ill: Richard Irwin, 1967).

Trow, Martin, "The Democratization of Higher Education in America," European Journal of Sociology Vol 3, No. 2 (1962).

Trow, Martin "Reflections on the Transition from Mass to Universial Higher Education" Daedalus, Vol 99, No 1, (Winter 1970).

Tweeten, Luther and George L Brinkman, Micropolitan Development (Ames: Iowa State University Press, 1976).

U.S. Bureau of the Census, Census of Population, Detailed Characteristics, 1970, Washington DC: 1970.

U.S. Bureau of the Census, Mobility of the Population of the United States, March 1970 to March 1975, Current Population Reports, Series P. 20, No. 285, 1975.

U.S. Bureau of the Census, Social and Economic Characteristics of the Metropolitan and Nonmetropolitan Population: 1977 and 1970. Current Population Reports, Special Studies p-23, No. 75, 1978.

U.S. Bureau of the Census, Statistical Abstracts, 1978a.

U.S. Bureau of the Census, Demographic, Social and Economic Profile of the States: Spring 1976. Current Population Reports, Series p-20, No. 334, January 1979.

U.S. Department of Health, Education & Welfare, National Center for Educational Statistics, "Participation in Adult Education, Final Report," 1975.

Waldhorn, Steven A. and Edward J. Blakely, Picket Fence Planning: A Study of Local Government Planning (Sacramento: The Special Subcommittee on Community Development, California Assembly, 1976).

Walker, Jack L., "The Diffusion of Innovation among the American States," American Political Science Review, 63 (September, 1969).

Warner W. Keith, "Rural Society in a Post-Industrial Age", Rural Sociology, (39, 1974) 306-318.

Wrigley, Robert L. Jr., "Small Cities Can Help to Revitalize Rural Areas" Annals, Vol 405, (Jan 1973) p. 55-64)